Well ID
ST012-LSZ30
ST012-LSZ30 (DUP)
ST012-CZ01
ST012-LSZ50
ST012-UWBZ17
ST012-W37
ST012-UWBZ31
ST012-UWBZ05
ST012-CZ09
ST012-LSZ16
ST012-UWBZ17

ssRL - Sample Specific Reporting Limit
U - results have been reported if present at or above the listed ssRL
J - values greater than ssRL but less than the PQL (3 x ssRL)
D - secondary dilution performed
Q - surrogate recovery limit exceedance
I - matrix interference
NC - not calibrated

Sample ID	Date	Isopentane (2-Methylbutane)	Qualifier	1-Pentene
		mg/kg		mg/kg
STO12-LSZ30-WG-PIANO-051618	5/16/2018 10:18	54.4	U	54.4
STO12-DUP01-WG-PIANO-051618	5/16/2018 10:18	59.5	U	59.5
STO12-CZ01-WG-PIANO-051618	5/16/2018 10:50	48.1	U	48.1
STO12-LSZ50-WG-PIANO-051618	5/16/2018 13:30	649.2		39.1
STO12-UWBZ17-WG-PIANO-051618	5/16/2018 12:35	39.1	U	39.1
STO12-W37-WG-PIANO-051618	5/16/2018 12:06	59.5	U	59.5
STO12-UWBZ31-WG-PIANO-051618	5/16/2018 12:55	65.8	U	65.8
STO12-UWBZ05-WG-PIANO-051718	5/16/2018 8:02	73.5	U	73.5
STO12-CZ09-WG-PIANO-051818	5/16/2018 9:53	69.4	U	69.4
STO12-LSZ16-WG-PIANO-051818	5/16/2018 10:15	62.5	U	62.5
STO12-UWBZ17-WG-PIANO-051618	5/16/2018 11:05	872.1		58.8

Qualifier	2-Methyl-1-butene	Qualifier	Pentane (nC5)	Qualifier	trans-2-pentene	Qualifier
	mg/kg		mg/kg		mg/kg	
U	54.4	U	54.4	U	54.4	U
U	59.5	U	59.5	U	59.5	U
U	48.1	U	48.1	U	48.1	U
U	39.1	U	13,027.8	D	39.1	U
U	39.1	U	39.1	U	39.1	U
U	59.5	U	107.0		59.5	U
U	65.8	U	65.8	U	65.8	U
U	73.5	U	73.5	U	73.5	U
U	69.4	U	69.4	U	69.4	U
U	62.5	U	62.5	U	62.5	U
U	58.8	U	1,876.5		58.8	U

cis-2-pentene	Qualifier	2-Methyl-2-butene (t)	Qualifier	t-Butanol (TBA)	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	7,348.4	D
59.5	U	59.5	U	8,851.2	D
48.1	U	48.1	U	7,016.8	D
39.1	U	39.1	U	5,902.3	D
39.1	U	39.1	U	5,739.4	D
59.5	U	59.5	U	9,302.0	D
65.8	U	65.8	U	9,765.0	D
73.5	U	73.5	U	10,880.5	D
69.4	U	69.4	U	10,120.4	D
62.5	U	62.5	U	9,451.3	D
58.8	U	58.8	U	7,524.3	D

2,2-Dimethylbutane (t)	Qualifier	Cyclopentane	Qualifier	2,3-Dimethylbutane	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U
59.5	U	59.5	U	59.5	U
48.1	U	48.1	U	48.1	U
122.1		1,755.9		1,155.4	
39.1	U	98.5		73.4	
59.5	U	109.9		59.5	U
65.8	U	97.2	J	65.8	U
73.5	U	73.5	U	73.5	U
69.4	U	117.1		69.4	U
62.5	U	62.5	U	62.5	U
151.0		2,128.3		1,072.5	

2-Methylpentane	Qualifier	Methyl-tert-butyl ether	Qualifier	3-Methylpentane	Qualifier	1-Hexene
mg/kg		mg/kg		mg/kg		mg/kg
54.4	U	21.7	U	54.4	U	54.4
407.4		23.8	U	185.0		59.5
48.1	U	19.2	U	48.1	U	48.1
16,165.4	D	15.6	U	8,171.9	D	39.1
549.1		15.6	U	429.2		39.1
405.0		23.8	U	169.4		59.5
675.6		26.3	U	316.8		65.8
73.5	U	29.4	U	73.5	U	73.5
69.4	U	27.8	U	69.4	U	69.4
62.5	U	25.0	U	62.5	U	62.5
3,576.5		44.1	U	6,843.2	D	58.8

Qualifier	Hexane (nC6)	Qualifier	Di-isopropyl ether	Qualifier	trans-2-hexene (t)	Qualifier
	mg/kg		mg/kg		mg/kg	
U	54.4	U	21.7	U	54.4	U
U	478.6		23.8	U	59.5	U
U	48.1	U	19.2	U	48.1	U
U	17,320.1	D	15.6	U	44.5	J
U	1,088.4		15.6	U	39.1	U
U	318.0		23.8	U	59.5	U
U	1,149.5		26.3	U	65.8	U
U	73.5	U	29.4	U	73.5	U
U	69.4	U	27.8	U	69.4	U
U	62.5	U	25.0	U	62.5	U
U	11,317.7	D	29.4	U	58.8	U

2-Methyl-2-pentene (t)	Qualifier	cis-2-hexene (t)	Qualifier	cis-3-Methyl-2-pentene (t)
mg/kg		mg/kg		mg/kg
54.4	U	54.4	U	54.4
59.5	U	59.5	U	59.5
48.1	U	48.1	U	48.1
39.1	U	39.1	U	39.1
39.1	U	39.1	U	39.1
59.5	U	59.5	U	59.5
65.8	U	65.8	U	65.8
73.5	U	73.5	U	73.5
69.4	U	69.4	U	69.4
62.5	U	62.5	U	62.5
58.8	U	58.8	U	58.8

Qualifier	Ethyl-tert-butyl ether	Qualifier	2,2-Dimethylpentane (t)	Qualifier	Methylcyclopentane
	mg/kg		mg/kg		mg/kg
U	21.7	U	54.4	U	54.4
U	23.8	U	59.5	U	743.0
U	19.2	U	48.1	U	48.1
U	15.6	U	182.1		17,863.8
U	15.6	U	44.8	J	1,714.0
U	23.8	U	59.5	U	539.9
U	26.3	U	65.8	U	1,063.0
U	29.4	U	73.5	U	73.5
U	27.8	U	69.4	U	884.7
U	25.0	U	62.5	U	62.5
U	29.4	U	113.4		15,010.0

Qualifier	2,4-Dimethylpentane	Qualifier	1,2-Dichloroethane	Qualifier	Benzene	Qualifier
	mg/kg		mg/kg		mg/kg	
U	54.4	U	21.7	U	54.4	U
	92.8		23.8	U	59.5	U
U	48.1	U	19.2	U	48.1	U
D	1,035.9		15.6	U	1,809.8	
	231.8		15.6	U	52.6	J
	59.5	U	23.8	U	78.7	J
	153.9		26.3	U	96.4	J
U	73.5	U	29.4	U	85.6	J
	69.4	U	27.8	U	69.4	U
U	62.5	U	25.0	U	62.5	U
D	640.0		14.7	U	1,732.4	

3,3-Dimethylpentane (t)	Qualifier	Thiophene	Qualifier	Cyclohexane	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	21.7	U	54.4	U
59.5	U	23.8	U	1,244.1	
48.1	U	19.2	U	48.1	U
279.1		15.6	U	19,282.8	D
86.7		15.6	U	4,120.0	D
59.5	U	23.8	U	716.2	
65.8	U	26.3	U	1,440.7	
73.5	U	29.4	U	136.5	
69.4	U	27.8	U	2,246.0	
62.5	U	25.0	U	62.5	U
195.9		29.4	U	19,857.1	D

2-Methylhexane	Qualifier	2,3-Dimethylpentane	Qualifier	Tert-amyl methyl ether	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	21.7	U
1,362.8		591.1		23.8	U
48.1	U	48.1	U	19.2	U
11,316.9	D	4,853.5	D	15.6	U
2,384.7	D	1,647.7		15.6	U
354.3		173.4		23.8	U
2,762.0		1,047.0		26.3	U
76.4	J	73.5	U	29.4	U
261.4		101.1	J	27.8	U
73.2	J	62.5	U	25.0	U
7,418.6	D	3,954.8		29.4	U

3-Methylhexane	Qualifier	trans-1,3-Dimethylcyclopentane (t)	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
2,115.3		750.7	
48.1	U	48.1	U
15,611.2	D	6,529.2	D
3,370.3	D	1,895.8	
482.7		223.8	
4,024.1		1,285.4	
112.7		73.5	U
454.1		283.7	
116.1		62.5	U
10,222.0	D	5,479.5	

cis-1,3-Dimethylcyclopentane (t)	Qualifier	trans-1,2-Dimethylcyclopentane (t)	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
280.1		1,224.9	
48.1	U	48.1	U
2,351.3		9,985.4	D
776.2		3,305.7	D
83.6	J	401.2	
492.7		2,083.3	
73.5	U	101.4	J
124.5		601.1	
62.5	U	87.5	J
2,311.2		10,358.6	D

2,2,4-Trimethylpentane	Qualifier	1-Heptene	Qualifier	Heptane (nC7)	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U
59.5	U	59.5	U	5,184.4	D
48.1	U	48.1	U	48.1	U
1,632.8		39.1	U	43,393.9	D
296.9		39.1	U	8,678.8	D
59.5	U	59.5	U	1,143.6	
65.8	U	65.8	U	11,722.5	D
73.5	U	73.5	U	462.8	
76.6	J	69.4	U	2,988.7	
62.5	U	62.5	U	793.7	
530.6		58.8	U	25,555.4	D

trans-2-heptene (t)	Qualifier	Methylcyclohexane	Qualifier	2,5-Dimethylhexane	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U
59.5	U	9,953.0		869.5	
48.1	U	48.1	U	48.1	U
79.3		47,850.7	D	3,689.3	
39.1	U	18,824.8	D	1,370.2	
59.5	U	2,194.1		95.2	
65.8	U	12,617.9	D	1,732.0	
73.5	U	1,283.3		73.5	U
69.4	U	9,183.9	D	630.0	
62.5	U	1,401.0		223.4	
58.8	U	51,954.0	D	1,821.9	

2,2,3-Trimethylpentane	Qualifier	2,4-Dimethylhexane	Qualifier	2,3,4-Trimethylpentane
mg/kg		mg/kg		mg/kg
54.4	U	54.4	U	54.4
122.4		1,230.7		270.5
48.1	U	48.1	U	48.1
439.7		2,381.2	D	954.4
171.9		1,662.3		578.2
59.5	U	105.1		59.5
182.0		2,186.4		345.5
73.5	U	73.5	U	73.5
86.2	J	743.9		110.4
62.5	U	250.3		119.3
294.2		2,193.1		818.4

Qualifier	2,3,3-Trimethylpentane	Qualifier	Toluene	Qualifier	2-Methylthiophene	Qualifier
	mg/kg		mg/kg		mg/kg	
U	54.4	U	54.4	U	21.7	U
	108.8		394.0		108.7	
U	48.1	U	48.1	U	19.2	U
	287.2		16,690.1	D	15.6	U
	453.3		1,143.2		15.6	U
U	59.5	U	710.2		23.8	U
	223.8		1,841.5		26.3	U
U	73.5	U	2,223.5		29.4	U
	69.4	U	1,714.5		27.8	U
	91.8	J	536.3		25.0	U
	666.3		19,832.3	D	29.4	U

2,3-Dimethylhexane	Qualifier	3-Methylthiophene	Qualifier	2-Methylheptane	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	21.7	U	54.4	U
59.5	U	23.8	U	6,719.1	D
48.1	U	19.2	U	48.1	U
2,393.0	D	15.6	U	19,481.6	D
1,682.6		15.6	U	5,581.9	D
111.6		23.8	U	891.5	
2,948.2		26.3	U	17,227.9	D
195.4		29.4	U	2,198.9	
1,493.5		27.8	U	12,030.1	D
498.9		25.0	U	4,782.6	
2,151.0		29.4	U	11,572.1	D

4-Methylheptane (t)	Qualifier	3-Methylheptane	Qualifier	3-Ethylhexane	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U
3,723.7		3,716.1	D	2,803.6	
48.1	U	48.1	U	48.1	U
4,753.6	D	10,131.6	D	4,560.3	D
1,222.6	D	2,863.0	D	2,439.2	D
219.6		461.7		277.2	
3,672.3	D	8,201.3	D	4,455.5	D
585.9		1,470.5		687.2	
4,392.6		6,863.5	D	4,295.7	
1,421.2		2,908.1		1,156.7	
4,237.4		6,048.0	D	4,103.2	

1,2-Dibromoethane	Qualifier	1-Octene	Qualifier	Octane (nC8)	Qualifier	2,4-Dimethylheptane (t)
mg/kg		mg/kg		mg/kg		mg/kg
21.7	U	54.4	U	54.4	U	54.4
23.8	U	4,308.1		16,352.2	D	3,059.5
19.2	U	48.1	U	48.1	U	48.1
15.6	U	7,535.8	D	37,228.7	D	4,101.4
15.6	U	2,382.5	D	11,066.9	D	1,432.7
23.8	U	393.8		1,744.4		310.8
26.3	U	5,420.4	D	49,888.6	D	6,008.3
29.4	U	1,351.8		7,276.4	D	5,101.4
27.8	U	6,344.2	D	47,042.8	D	6,365.0
25.0	U	1,987.9		7,591.6	D	4,830.6
58.8	U	5,028.9	D	19,390.3	D	4,831.8

Qualifier	2,5-Dimethylheptane (t)	Qualifier	Ethylbenzene	Qualifier	2-Ethylthiophene
	mg/kg		mg/kg		mg/kg
U	54.4	U	54.4	U	21.7
D	3,367.4	D	1,412.0		101.1
U	48.1	U	48.1	U	19.2
D	4,359.3	D	9,952.3	D	216.5
D	1,216.7	D	2,456.6		68.9
	329.0		669.2		23.8
D	8,002.8	D	3,123.9		169.5
	2,702.4	D	5,987.9	D	131.7
D	9,508.5	D	3,686.2		244.1
	2,708.5	D	3,781.9		102.5
	4,682.6		11,747.2	D	29.4

Qualifier	2,3-Dimethylheptane (t)	Qualifier	m-Xylene	Qualifier	p-Xylene	Qualifier
	mg/kg		mg/kg		mg/kg	
U	54.4	U	54.4	U	54.4	U
	8,530.4	D	3,837.5		1,632.0	
U	48.1	U	48.1	U	48.1	U
	11,482.1	D	20,119.5	D	6,662.5	D
	3,645.4	D	5,332.9	D	1,609.4	D
U	805.8		1,166.7		356.8	
	15,937.7	D	4,906.0	D	1,793.8	D
	7,731.3	D	8,738.3	D	2,478.9	D
	23,217.3	D	8,107.0	D	2,640.3	D
	5,484.5	D	7,263.9	D	1,944.1	D
U	5,045.1	D	16,853.8	D	5,774.8	D

4-Methyloctane (t)	Qualifier	2-Methyloctane (t)	Qualifier	3-Methyloctane (t)	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U
3,211.7	D	4,252.9	D	20,767.9	D
48.1	U	48.1	U	313.1	
4,307.9	D	4,909.2	D	19,682.4	D
1,444.2	D	1,689.2	D	6,113.0	D
326.8		366.4		1,304.2	
6,353.8	D	8,367.1	D	28,004.6	D
4,135.0	D	4,221.5	D	16,787.7	D
11,632.3	D	12,069.3	D	43,354.3	D
2,859.7	D	3,692.6	D	13,854.1	D
4,746.7		5,092.7		9,703.1	D

Styrene	Qualifier	o-Xylene	Qualifier	1-Nonene	Qualifier	Nonane (nC9)	Qualifier
mg/kg		mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U	54.4	U
59.5	U	1,876.1		1,326.9		36,311.8	D
48.1	U	48.1	U	48.1	U	133.4	
39.1	U	8,755.9	D	1,551.0		28,577.8	D
39.1	U	2,326.3		620.5		14,720.1	D
59.5	U	542.0		59.5	U	2,112.0	
65.8	U	22,255.3		1,330.6		46,454.1	D
73.5	U	4,364.4		1,314.4		45,286.9	D
69.4	U	2,830.4		2,094.0		67,078.3	D
62.5	U	4,180.4		1,081.6		39,257.6	D
58.8	U	7,128.1	D	463.0		19,509.2	D

Isopropylbenzene (cumene)	Qualifier	n-Propylbenzene	Qualifier	1-Methyl-3-ethylbenzene
mg/kg		mg/kg		mg/kg
54.4	U	54.4	U	54.4
1,053.7		1,761.9		4,061.2
48.1	U	48.1	U	48.1
1,465.7	D	2,392.5	D	6,481.1
781.3	U	1,285.5	D	3,492.3
132.3		227.4		552.2
1,049.7		1,406.9	D	3,082.8
1,738.8	D	4,136.6	D	9,479.2
1,578.8	D	3,317.1	D	7,474.0
1,436.7	D	3,333.4	D	7,843.2
1,451.4	D	2,288.6	D	5,566.2

Qualifier	1-Methyl-4-ethylbenzene	Qualifier	1,3,5-Trimethylbenzene	Qualifier
	mg/kg		mg/kg	
U	54.4	U	54.4	U
	3,466.6	D	3,237.0	
U	48.1	U	48.1	U
D	2,593.0	D	3,420.4	D
D	1,279.0	D	2,018.0	
	245.9		278.7	
	1,315.8	U	1,864.9	
D	3,694.9	D	4,793.1	
D	2,878.9	D	3,340.8	
D	2,989.8	D	3,805.9	D
D	2,020.4	D	2,514.0	

1-Methyl-2-ethylbenzene	Qualifier	1,2,4-Trimethylbenzene	Qualifier	1-Decene	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U
1,578.4	D	7,858.8	D	2,067.4	
48.1	U	48.1	U	48.1	U
2,335.6	D	9,014.4	D	1,659.6	
1,139.3	D	5,014.3	D	1,135.9	
206.4		758.5		59.5	U
1,393.4		3,687.3	D	2,438.8	
2,854.2	D	11,086.6	D	2,688.3	
1,983.4	D	8,554.4	D	2,260.4	
2,852.3	D	12,873.7	D	2,686.5	
1,667.7	D	6,404.3	D	1,196.3	

Decane (nC10)	Qualifier	sec-Butylbenzene	Qualifier	1-Methyl-3-isopropylbenzene	Qualifier
mg/kg		mg/kg		mg/kg	
74.4	J	54.4	U	54.4	U
42,554.6	D	895.9		1,399.9	
237.9		48.1	U	48.1	U
22,851.6	D	740.2		839.3	D
13,905.3	D	536.2		828.9	
2,137.6		65.0	J	88.0	J
30,696.5	D	736.8		864.8	
51,272.1	D	1,588.8	D	1,586.3	D
37,845.4	D	1,311.9		1,388.9	U
49,827.4	D	1,277.8	D	1,388.8	D
20,078.9	D	759.5		1,197.5	

1-Methyl-4-isopropylbenzene	Qualifier	Indane	Qualifier	Indene	Qualifier	1-Methyl-2-isopropybenzene	Qualifier
mg/kg		mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	54.4	U	54.4	U
855.9		289.6		59.5	U	157.1	
48.1	U	48.1	U	48.1	U	48.1	U
642.4		488.1		39.1	U	123.2	
389.3		159.5		39.1	U	93.4	
59.5	U	59.5	U	59.5	U	59.5	U
500.3		97.1	J	65.8	U	107.4	
1,324.4		378.5		73.5	U	275.9	
940.1		131.1		69.4	U	181.4	
1,188.5		447.4		62.5	U	251.8	
497.8		313.7		58.8	U	112.2	

1-Methyl-3-propylbenzene	Qualifier	1-Methyl-4-propylbenzene	Qualifier	n-Butylbenzene
mg/kg		mg/kg		mg/kg
54.4	U	54.4	U	54.4
2,238.9	D	1,141.1		1,225.8
48.1	U	48.1	U	48.1
1,387.5	D	751.9		867.9
781.3	U	449.2		558.6
139.4		59.5	U	68.7
1,237.1		601.0		802.8
3,361.0	D	1,470.0	U	1,908.5
2,059.4	D	1,034.6		1,205.5
2,811.1	D	1,250.0	U	1,475.7
1,343.3		625.2		732.0

Qualifier	1,3-Dimethyl-5-ethylbenzene	Qualifier	1,2,diethylbenzene	Qualifier
	mg/kg		mg/kg	
U	54.4	U	54.4	U
	1,453.3	D	300.4	
U	48.1	U	48.1	U
	911.1	D	237.1	
	550.4		134.4	
J	86.9	J	59.5	U
	713.4		141.8	
D	1,838.0	D	1,470.6	U
	1,179.3		396.5	
D	1,629.5	D	566.3	
	895.5		397.6	

1-Methyl-2-propylbenzene	Qualifier	1,4-Dimethyl-2-ethylbenzene	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
1,177.2		1,186.1	
48.1	U	48.1	U
829.2		802.2	
490.6		460.9	
73.2	J	64.0	J
668.6		511.2	
1,564.6	D	1,462.2	
1,089.2		891.7	
1,376.4	D	1,250.0	U
885.6		698.2	

1,3-Dimethyl-4-ethylbenzene	Qualifier	1,2-Dimethyl-4-ethylbenzene	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
1,322.3	D	1,743.0	
48.1	U	48.1	U
781.3	U	891.7	D
485.3		572.1	
77.5	J	88.8	J
647.5		733.5	
1,470.6	U	1,732.5	D
1,067.7		1,153.5	
1,466.4	D	1,802.3	D
1,021.4		1,050.7	

1,2-Dimethyl-3-ethylbenzene	Qualifier	Undecane (nC11)	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
803.7		31,102.5	D
48.1	U	82.3	
434.3		15,649.8	D
226.3		8,227.5	D
59.5	U	1,462.7	
338.8		13,422.2	D
1,171.8		35,329.3	D
471.7		19,481.3	D
1,072.6		35,170.4	D
393.7		13,539.9	D

1,2,4,5-Tetramethylbenzene	Qualifier	1,2,3,5-Tetramethylbenzene (t)	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
1,068.4		1,868.0	D
48.1	U	48.1	U
641.1		831.9	D
302.7		487.3	
59.5	U	77.9	J
416.4		657.9	
1,236.6		1,652.4	D
548.5		869.0	
1,292.1		1,810.9	D
506.8		873.3	

n-Pentylbenzene	Qualifier	Naphthalene	Qualifier	Benzothiophene	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	21.7	U
959.1		463.0		23.8	U
48.1	U	48.1	U	19.2	U
450.0		619.7		15.6	U
177.0		509.7		15.6	U
59.5	U	67.8	J	23.8	U
352.5		345.1		26.3	U
1,207.0		916.5		36.5	J
348.6		351.5		27.8	U
1,146.9		950.8		34.6	J
243.5		731.2		29.4	U

Dodecane (nC12)	Qualifier	1,2,3,4-Tetramethylbenzene (t)	Qualifier	MMT	Qualifier
mg/kg		mg/kg		mg/kg	
54.4	U	54.4	U	21.7	U
16,210.7	D	2,455.8	D	23.8	U
48.1	U	48.1	U	19.2	U
459.2		1,019.3	D	15.6	U
414.2		532.9		15.6	U
655.5		91.3		23.8	U
540.7		718.2		26.3	U
18,171.1	D	1,975.6	D	29.4	U
680.8		811.8		27.8	U
16,453.9	D	2,258.7	D	25.0	U
6,271.9	D	947.2		29.4	U

2-Methylnaphthalene	Qualifier	1-Methylnaphthalene	Qualifier
mg/kg		mg/kg	
54.4	U	54.4	U
10,215.4	D	6,728.8	D
48.1	U	48.1	U
3,654.5	D	1,939.7	
2,094.6		1,691.4	
319.6		218.5	
2,379.8		1,815.3	
10,761.1	D	8,628.9	D
1,802.7		1,307.0	
8,485.8	D	6,338.1	D
3,025.8		2,324.5	

J
D
Q
U
I
NC

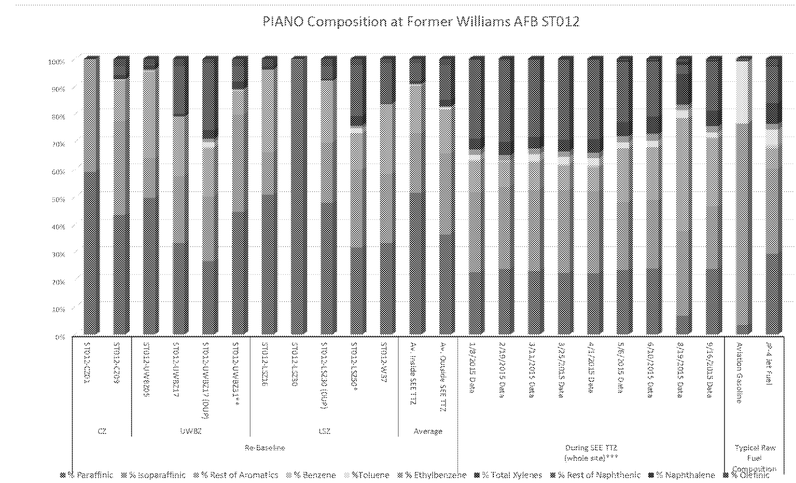
Cell: A6

Comment: Chenette, Eduard:

RW said lab analyst noted that the sample was too aqueous. She will check and verify why they were so different

Event Type	Zone	Well ID	Sample ID	Sampling Date	Inside SEE zone?	% Paraffinic	% Isoparaffinic	% Rest of Aromatics	% Benzene	%Toluene	% Ethylbenzene	% Total Xylenes	% Rest of Naphthenic	% Naphthalene	% Olefinic	% Aromatic	% Naphthenic	%Total
Re-Baseline	CZ	ST012-CZ01	STO12-CZ01-WG-PIANO-051618	5/16/2018 10:50	Yes	59.2	40.8	0.0	0.0048	0.0048	0.00	0.01	0.0	0.0048	0.0	0.0	0.0	100.0
		ST012-CZ09	STO12-CZ09-WG-PIANO-051818	5/16/2018 9:53	Yes	43.3	34.1	14.7	0.0069	0.17	0.37	1.36	3.3	0.0352	2.6	16.6	3.3	99.9
	UWBZ	ST012-UWBZ05	STO12-UWBZ05-WG-PIANO-051718	5/16/2018 8:02	Yes	49.8	14.5	31.1	0.0086	0.22	0.60	1.56	0.4	0.0917	1.7	33.5	0.5	100.0
		ST012-UWBZ17	STO12-UWBZ17-WG-PIANO-051618	5/16/2018 12:35	Yes	33.3	24.5	21.0	0.0053	0.11	0.25	0.93	17.5	0.0510	2.4	22.3	17.6	100.1
		ST012-UWBZ17 (DUP)[1]	STO12-UWBZ17-WG-PIANO-051618-DUP	5/16/2018 11:05	Yes	26.7	23.6	17.5	0.1732	1.98	1.17	2.98	24.3	0.0731	1.5	23.8	24.4	100.0
		ST012-UWBZ31**	STO12-UWBZ31-WG-PIANO-051618	5/16/2018 12:55	No*	44.4	35.4	8.7	0.0096	0.18	0.31	2.90	5.5	0.0345	2.6	12.1	5.5	100.0
	LSZ	ST012-LSZ16	STO12-LSZ16-WG-PIANO-051818	5/16/2018 10:15	Yes	50.8	15.4	29.5	0.0063	0.05	0.38	1.34	0.4	0.0951	2.0	31.3	0.5	100.0
		ST012-LSZ30	STO12-LSZ30-WG-PIANO-051618	5/16/2018 10:18	Yes	100.0	0.0	0.0	0.0054	0.01	0.01	0.02	0.0	0.0054	0.0	0.0	0.0	100.0
		ST012-LSZ30 (DUP)	STO12-DUP01-WG-PIANO-051618	5/16/2018 10:18	Yes	47.8	21.8	22.4	0.0060	0.04	0.14	0.73	4.6	0.0463	2.5	23.3	4.6	100.0
		ST012-LSZ50*	STO12-LSZ50-WG-PIANO-051618	5/16/2018 13:30	No	31.6	28.2	13.2	0.1810	1.67	1.00	3.55	18.6	0.0620	1.9	19.6	18.7	100.0
		ST012-W37	STO12-W37-WG-PIANO-051618	5/16/2018 12:06	No	33.4	24.8	25.3	0.0079	0.07	0.07	0.21	14.7	0.0068	1.4	25.7	14.7	100.0
	Average	Average Inside SEE TTZ				51.36	21.84	17.02	0.03	0.32	0.36	1.12	6.31	0.05	1.59	18.85	6.36	100.0
		Average Outside SEE TTZ				36.47	29.47	15.75	0.07	0.64	0.46	2.22	12.93	0.03	1.97	19.13	12.97	100.0
During SEE TTZ (whole site)***		1/8/2015 Data		1/8/2015		22.71	29.00	11.4	0.28	1.87	1.94	4.02	28.5	0.18	0.16	19.50	28.63	100.0
		2/19/2015 Data		2/29/2015		23.88	29.80	9.1	0.45	0.00	1.92	4.85	29.5	0.25	0.28	16.27	29.78	100.0
		3/11/2015 Data		3/11/2015		23.13	29.50	10.0	0.42	2.37	2.05	4.19	27.8	0.25	0.22	19.07	28.08	100.0
		3/25/2015 Data		3/25/2015		22.47	29.96	9.1	0.47	2.56	2.02	4.14	29.0	0.11	0.17	18.27	29.14	100.0
		4/1/2015 Data		4/1/2015		22.17	29.89	8.9	0.46	2.62	2.02	5.02	28.7	0.10	0.17	18.97	28.81	100.0
		5/6/2015 Data		5/6/2015		23.31	24.52	19.3	0.29	1.92	2.26	5.10	21.6	0.67	0.47	28.85	22.26	99.4
		6/10/2015 Data		6/10/2015		24.10	24.73	19.2	0.18	2.09	2.52	6.36	20.0	0.46	0.42	30.32	20.43	100.0
		8/19/2015 Data		8/19/2015		6.80	30.70	41.0	0.10	2.86	1.89	11.15	3.3	1.16	1.11	57.0	4.4	100.0
		9/16/2015 Data		9/16/2015		23.94	22.65	24.8	0.17	1.90	2.18	5.61	17.9	0.45	0.41	34.6	18.4	100.0
Typical Raw Fuel		Aviation Gasoline				3.33	74.22	0.0	0.13	22.73	0.11	0.31	0.51	0.00	0.01	21.92	0.51	101.4
		JP-4 Jet Fuel				29.34	31.02	7.4	1.07	5.64	2.03	7.75	13.16	0.17	2.58	23.90	13.16	100.2

* Well located outside of the SEE TTZ.
** ST012-UWBZ31 well is located outside of the SEE TTZ, however, some heating of the area may have occurred from the LSZ heating below.
*** Analytical results received for SEE TTZ were quantified as relative percent area method by GC/MS.
[1] Extra bottles shipped and labeled ST012-LSZ17 but were not indicated on chain of custody. Analyzed but mislabeling is suspected.
[2] Source: Kaplan, I. R., Galperin, Y., Lu, S., & Lee, R. (1997). Forensic Environmental Geochemistry: Differentiation of fuel-types, their sources and release time. *Organic Geochemistry, 27* (5-6), 289-317. doi:10.1016/s0146-6380(97)87941-7



Event Type	Zone	Well ID
Re-Baseline	CZ	ST012-CZ01
		ST012-CZ09
	UWBZ	ST012-UWBZ05
		ST012-UWBZ17
		ST012-UWBZ17 (DUP)
		ST012-UWBZ31**
	LSZ	ST012-LSZ16
		ST012-LSZ30
		ST012-LSZ30 (DUP)
		ST012-LSZ50*
		ST012-W37
	Average	Av. Inside SEE TTZ
		Av. Outside SEE TTZ
During SEE TTZ (whole site)***		1/8/2015 Data
		2/19/2015 Data
		3/11/2015 Data
		3/25/2015 Data
		4/1/2015 Data
		5/6/2015 Data
		6/10/2015 Data
		8/19/2015 Data
		9/16/2015 Data
Typical Raw Fuel		Aviation Gasoline
		JP-4 Jet Fuel

						Evaporation		Waterwashing					Biodegradation				Diagnostic Ratios (Refining Properties)									Oxygenates & Other (mg/kg)						Lead Scavengers (mg/kg)		Sulfur containing HCs (mg/kg)				
Event Type	Zone	Well ID	Sample ID	Date	Inside SEE zone?	n-Pentane/ (n-Pentane+n-Heptane)	2-Methylpentane / (2-Methylpentane+2-Methylheptane)	Benzene / (Benzene+Cyclohexane)	Toluene / (Toluene+Methylcyclohexane)	Aromatics / Total Paraffins (m+isocyc)	Aromatics / Naphthenes	wt% < o-xylene	(C4-C8 Para +Isopara) / C4-C8 Olefins	3-Methylhexane / n-Heptane	Methylcyclohexane / n-Heptane	Isoparaffins + Naphthenes / Paraffins	2,2,4-Trimethylpentane / (2,2,4-Trimethylpentane+Methylcyclohexane)	2,2,4-Trimethylpentane / Total TMPs	nC9 / Isopropylbenzene	nC10 / 1-Methyl-2-ethylbenzene	nC11 / 1,4-Dimethyl-2-ethylbenzene	(2-methylhexane + 2,3dimethylpentane) / (3-methylhexane + 2,4 dimethylpentane)	Naphthalene / (Naphthalene+nC12)	Methylcyclohexane/ (Methylcyclohexane+Toluene)	Toluene/ n-Octane	Methyl4ert-butyl ether (MTBE)	Di-isopropyl ether (DIPE)	Ethyl4ert-butyl ether (ETBE)	Tert-amyl methyl ether (TAME)	t-Butanol (TBA)	MMT	1,2-Dichloroethane (EDC)	1,2-Dibromoethane (EDB)	Thiophene	2-Methylthiophene	3-Methylthiophene	2-Ethylthiophene	Benzothiophene
Re-Baseline Event	CJ	ST012-CZ01	ST012-CZ01-WG-PWIO-051618	5/16/2018 10:50	Yes	U	U	U	U	U	U	94.17	0.04	U	U	0.89	U	U	U	U	U	U	U	U	U	U	U	U	U	7,016.77	U	U	U	U	U	U	U	U
		ST012-CZ09	ST012-CZ09-WG-PWIO-051618	5/16/2018 9:53	Yes	U	U	U	0.16	0.21	0.00	56.45	29.59	0.15	3.07	0.98	U	0.28	42.49	19.98	21.85	U	0.34	0.84	0.04	U	U	U	U	10,120.39	U	U	U	U	U	244.06	U
	UWBZ	ST012-UWBZ05	ST012-UWBZ05-WG-PWIO-051718	5/16/2018 9:02	Yes	U	U	0.39	0.63	0.52	69.94	26.57	4.39	0.24	2.77	0.39	U	U	26.05	17.96	24.16	U	0.05	0.37	0.31	U	U	U	U	10,580.47	U	U	U	U	U	131.87	36.59
		ST012-UWBZ17	ST012-UWBZ17-WG-PWIO-051618	5/16/2018 12:35	Yes	U	0.09	0.01	0.06	0.30	1.25	62.69	7.82	0.30	2.17	1.28	U	0.29	U	12.21	17.85	1.12	0.55	0.04	0.19	U	U	U	U	5,739.43	U	U	U	U	U	65.95	U
		ST012-UWBZ17 (DUP)	ST012-UWBZ17-WG-PWIO-051618	5/16/2018 11:05	Yes	0.07	0.24	0.08	0.28	0.32	0.98	75.45	32.18	0.40	2.03	1.79	0.00	0.23	13.44	12.04	19.39	1.06	0.10	0.72	1.02	U	U	U	U	7,524.29	U	U	U	U	U	U	U
		ST012-UWBZ31	ST012-UWBZ31-WG-PWIO-051618	5/16/2018 12:50	No*	U	0.04	0.06	0.13	0.14	2.20	64.96	12.22	0.34	1.06	0.92	U	U	44.28	22.03	28.28	0.91	0.30	0.87	0.04	U	U	U	U	9,764.95	U	U	U	U	U	159.54	U
	LSZ	ST012-LSZ18	ST012-LSZ18-WG-PWIO-051618	5/16/2018 10:15	Yes	U	U	U	0.23	0.47	61.73	28.42	25.59	0.15	1.77	0.31	U	U	27.33	17.47	U	U	0.05	0.72	0.07	U	U	U	U	9,451.34	U	U	U	U	U	102.45	34.59
		ST012-LSZ30	ST012-LSZ30-WG-PWIO-051618	5/16/2018 10:18	Yes	U	0.06	U	U	0.31	5.06	39.01	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	7,345.39	U	U	U	U	U	U	U
		ST012-LSZ30 (DUP)	ST012-DUP01-WG-PWIO-051618	5/16/2018 10:18	Yes	U	0.06	U	0.04	0.31	5.06	39.01	8.80	0.41	1.92	0.55	U	U	U	26.96	26.22	0.88	0.03	0.96	0.02	U	U	U	U	8,851.19	U	U	U	U	U	101.09	U
		ST012-LSZ50	ST012-LSZ50-WG-PWIO-051618	5/16/2018 13:30	No	0.23	0.45	0.09	0.26	0.25	1.05	77.88	19.91	0.36	1.10	1.48	0.00	0.49	19.59	9.78	19.51	0.05	0.57	0.74	0.45	U	U	U	U	5,902.77	U	U	U	U	U	216.47	U
		ST012-W37	ST012-W37-WG-PWIO-051618	5/16/2018 12:06	No	0.09	0.31	0.10	0.24	0.35	1.75	71.69	1.08	0.42	1.92	1.18	U	U	15.97	10.38	22.85	U	0.09	0.76	0.41	U	U	U	U	8,302.03	U	U	U	U	U	U	U
	Average	Average				0.13	0.18	0.12	0.21	0.32	15.40	57.68	14.09	0.32	1.98	0.93	0.00	0.30	27.01	16.43	22.25	0.80	0.24	0.77	0.27	U	U	U	U	8,354.73	#DIV/0!	U	U	U	103.73	U	147.73	35.55
During SEE Event (within 5 km)		1/8/2015 Data		1/8/2015		0.06	0.46	0.08	0.19	0.24	0.65	N/A	258.24	0.45	1.53	2.54	0.00																					
		2/19/2015 Data		2/19/2015		0.15	0.76	0.11	0.00	0.19	0.55	N/A	260.82	0.45	1.41	2.50	0.00																					
		3/11/2015 Data		3/11/2015		0.12	0.62	0.11	0.24	0.24	0.65	N/A	209.41	0.45	1.46	2.49	0.00																					
		3/25/2015 Data		3/25/2015		0.09	0.50	0.13	0.24	0.22	0.63	N/A	279.18	0.43	1.55	2.63	0.00																					
		4/12/2015 Data		4/12/2015		0.12	0.25	0.23	0.55	0.23	0.65	N/A	276.44	0.44	1.51	2.65	0.00																					
		5/6/2015 Data		5/6/2015		0.09	0.40	0.11	0.24	0.41	1.25	N/A	330.04	0.43	1.57	2.03	0.01																					
		6/10/2015 Data		6/10/2015		0.02	0.13	0.11	0.28	0.44	1.46	N/A	0.00	0.37	1.54	1.87	0.00																					
		6/18/2015 Data		6/18/2015		0.31	1.36	0.55	4.53	1.35	12.88	N/A	42.41	1.50	0.40	5.18	5.60																					
		9/18/2015 Data				0.02	0.15	0.11	0.28	0.53	1.88	N/A	515.71	0.38	1.55	1.71	0.00																					
		Average				0.11	0.54	0.16	0.79	0.43	2.35	#DIV/0!	244.59	0.54	1.39	2.62	0.73																					
Typical Raw Fuel		Aviation Gasoline																																					
		JP-4 Jet Fuel																																					

* ST012-UWBZ31 well located close enough to SEE zone to capture SEE-related activities

Biodegradation Ratios

(*iso*-paraffins+naphthenes)/*n*-paraffins

Gives us an approximation of the magnitude of biological alteration ("biodegradation"). Normally ranges from about 2 to 10 in fresh gasoline. The ratio increases as biodegradation proceeds because the *iso*-paraffins and naphthenes (*cyclo*-alkanes) are more resistant to biological alteration compared to the *n*-paraffins.

Biodegradation Ratios (Cont'd)

Methyl-*cyclo*-hexane/*n*-C_7 (n-heptane)

Normally, around 0.5 to 2.0 in fresh gasoline, but can vary. The ratio increases as biodegradation proceeds because methyl-*cyclo*-hexane is more resistant to biological alteration compared to *n*-heptane.

Cell: W15
Comment: Chemetra, Edward:
0.05 or 0.97, have to confirm with Pace analytical